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UNIVERSITI SAINS MALAYSIA

Peperiksaan Semester Pertama  
Sidang Akademik 2003/2004  
*First Semester Examination  
2003/2004 Academic Session*

September/Oktober  
*September/October*

**ESA 371/3 – Elemen Sub-sistem Kapal Terbang**  
*(Aircraft Sub-system Elements)*

Masa : 3 jam  
Hour : [3 hours]

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**ARAHAN KEPADA CALON :**  
**INSTRUCTION TO CANDIDATES:**

Sila pastikan bahawa kertas soalan ini mengandungi **SEBELAS** mukasurat bercetak dan **SEMBILAN** soalan sebelum anda memulakan peperiksaan.  
*Please ensure that this paper contains **ELEVEN** printed pages and **NINE** questions before you begin examination.*

Sila jawab **TIGA** soalan sahaja  
*Answer **THREE** questions only.*

Jawab **SOALAN NO.1 (S1)** dan mana-mana **DUA** soalan daripada S2 – S9.  
Untuk menjawab tiga soalan ini , pelajar perlu mengambil kira 3 jenis pesawat yang berbeza.  
*Answer the **QUESTION NO.1(S1)** and any **TWO** questions from those with Q2- Q9(S2- S9).  
Answering these three questions in each of them a student should consider three different type of aircraft.*

Soalan boleh dijawab dalam Bahasa Inggeris kecuali satu soalan mestilah dijawab dalam Bahasa Malaysia.  
*The questions can be answered in English but one question must be answered in Bahasa Malaysia.*

Setiap soalan mestilah dimulakan pada mukasurat yang baru.  
*Each questions must begin from a new page.*

Kertas soalan peperiksaan ini tidak dibenarkan dibawa keluar dari dewan peperiksaan.  
*You are not allowed to take the question paper from examination hall.*

S1. [a] Bagi sebarang jenis pesawat (pilihan anda), berikan

- (i) Spesifikasi misi
- (ii) Keperluan teknikal

*For any type of aircraft (on your choice), please provide*

- (i) *Mission Specifications*
- (ii) *Technical Requirements*

**(10 markah/marks)**

[b] Seterusnya berikan juga,

- (i) Pandangan keseluruhan pesawat berdasarkan bentangan asas
- (ii) Komposisi dan kegunaan sistem peralatan atas papan dalam pesawat
- (iii) Saiz anak kapal dan fungsinya.

*Please provide also*

- (i) *Aircraft overall view with elementary layout*
- (ii) *Composition and purpose of the onboard equipment systems.*
- (iii) *Crew size and functions.*

**(90 markah/marks)**

S2. [a] Bagi sebarang pesawat penumpang (pilihan anda), berikan

- (i) Keperluan teknikal
- (ii) Pandangan keseluruhan pesawat berdasarkan bentangan asas

*For any passenger aircraft (on your choice), please provide*

- (i) *Technical Requirements*

**(5 markah/marks)**

- (ii) *Aircraft overall view with elementary layout.*

**(15 markah/marks)**

[b] Berikan juga pandangan keseluruhan sistem peralatan tempat penumpang dan terangkan perkara yang berikut:

- (i) Kegunaannya
- (ii) Sistem fizikal
- (iii) Operasi am
- (iv) Kedudukan komponen utama
- (v) Sifat sub-sistem secara umum
- (vi) Contoh unit struktur
- (vii) Sistem antara muka.

*Please provide also, the overview of the passenger compartment equipment systems and explain the following:*

- (i) *Its purpose.*
- (ii) *The system physical description.*
- (iii) *The general operation.*
- (iv) *The main components location.*
- (v) *The general sub-system features.*
- (vi) *The examples of structural units.*
- (vii) *The system Interface.*

**(80 markah/marks)**

S3. [a] Bagi sebarang jenis pesawat (pilihan anda), berikan

- (i) Keperluan teknikal
- (ii) Pandangan keseluruhan pesawat berdasarkan bentangan asas

*For any type of aircraft (on your choice), please provide*

- (i) *Technical Requirements*

**(5 markah/marks)**

- (ii) *Aircraft overall view with elementary layout.*

**(15 markah/marks)**

[b] Berikan juga pandangan keseluruhan sistem peralatan tempat anak kapal dan terangkan perkara yang berikut:

- (i) Kegunaannya
- (ii) Sistem fizikal
- (iii) Operasi am
- (iv) Kedudukan komponen utama
- (v) Sifat sub-sistem secara umum
- (vi) Contoh unit struktur
- (vii) Sistem antara muka.

*Please provide also, the overview of the crew compartment equipment systems and explain the following:*

- (i) *Its purpose.*
- (ii) *The system physical description.*
- (iii) *The general operation.*
- (iv) *The main components location.*
- (v) *The general sub-system features.*
- (vi) *The examples of structural units.*
- (vii) *The system Interface.*

**(80 markah/marks)**

S4. [a] Bagi sebarang jenis pesawat tentera (pilihan anda), berikan

- (i) Keperluan teknikal
- (ii) Pandangan keseluruhan pesawat berdasarkan bentangan asas

*For any type of military aircraft (on your choice), please provide*

- (i) *Technical Requirements*

**(5 markah/marks)**

- (ii) *Aircraft overall view with elementary layout.*

**(15 markah/marks)**

[b] Berikan juga pandangan keseluruhan sistem peralatan khusus (tentera), dan terangkan perkara yang berikut:

- (i) Kegunaannya
- (ii) Sistem fizikal
- (iii) Operasi am
- (iv) Kedudukan komponen utama
- (v) Sifat sub-sistem secara umum
- (vi) Contoh unit struktur
- (vii) Sistem antara muka

*Please provide also, the overview of the special (military) equipment systems and explain the following:*

- (i) *Its purpose.*
- (ii) *The system physical description.*
- (iii) *The general operation.*
- (iv) *The main components location.*
- (v) *The general sub-system features.*
- (vi) *The examples of structural units.*
- (vii) *The system Interface.*

**(80 markah/marks)**

S5. [a] Bagi sebarang jenis pesawat (pilihan anda), berikan

- (i) Keperluan teknikal
- (ii) Pandangan keseluruhan pesawat berdasarkan bentangan asas

*For any type of aircraft (on your choice), please provide*

- (i) *Technical Requirements*

**(5 markah/marks)**

- (ii) *Aircraft overall view with elementary layout.*

**(15 markah/marks)**

[b] Berikan juga pandangan keseluruhan sistem penyaman udara dan terangkan perkara yang berikut:

- (i) Kegunaannya
- (ii) Sistem fizikal
- (iii) Operasi am
- (iv) Kedudukan komponen utama
- (v) Sifat sub-sistem secara umum
- (vi) Contoh unit struktur
- (vii) Sistem antara muka.

*Please provide also, the overview of the air conditioning system and explain the following:*

- (i) *Its purpose.*
- (ii) *The system physical description.*
- (iii) *The general operation.*
- (iv) *The main components location.*
- (v) *The general sub-system features.*
- (vi) *The examples of structural units.*
- (vii) *The system Interface.*

**(80 markah/marks)**

S6. [a] Bagi sebarang jenis pesawat (pilihan anda), berikan

- (i) Keperluan teknikal
- (ii) Pandangan keseluruhan pesawat berdasarkan bentangan asas

*For any type of aircraft (on your choice), please provide*

- (i) *Technical Requirements*

**(5 markah/marks)**

- (ii) *Aircraft overall view with elementary layout.*

**(15 markah/marks)**

[b] Berikan juga pandangan keseluruhan sistem peruntukan keselamatan kecemasan dan terangkan perkara yang berikut:

- (i) Kegunaannya
- (ii) Sistem fizikal
- (iii) Operasi am
- (iv) Kedudukan komponen utama
- (v) Sifat sub-sistem secara umum
- (vi) Contoh unit struktur
- (vii) Sistem antara muka.

*Please provide also, the overview of the emergency safety provision system and explain the following:*

- (i) *Its purpose.*
- (ii) *The system physical description.*
- (iii) *The general operation.*
- (iv) *The main components location.*
- (v) *The general sub-system features.*
- (vi) *The examples of structural units.*
- (vii) *The system Interface.*

**(80 markah/marks)**

S7. [a] Bagi sebarang jenis pesawat (pilihan anda), berikan

- (i) Keperluan teknikal
- (ii) Pandangan keseluruhan pesawat berdasarkan bentangan asas

*For any type of aircraft (on your choice), please provide*

- (i) *Technical Requirements*

(5 markah/marks)

- (ii) *Aircraft overall view with elementary layout.*

(15 markah/marks)

[b] Berikan juga pandangan keseluruhan sebarang sistem perlindungan daripada kesan berbahaya dan terangkan perkara yang berikut:

- (i) Kegunaannya
- (ii) Sistem fizikal
- (iii) Operasi am
- (iv) Kedudukan komponen utama
- (v) Sifat sub-sistem secara umum
- (vi) Contoh unit struktur
- (vii) Sistem antara muka.

*Please provide also, the overview of the any protective system from hazardous effect and explain the following:*

- (i) *Its purpose.*
- (ii) *The system physical description.*
- (iii) *The general operation.*
- (iv) *The main components location.*
- (v) *The general sub-system features.*
- (vi) *The examples of structural units.*
- (vii) *The system Interface.*

(80 markah/marks)



S8. [a] Bagi sebarang jenis pesawat (pilihan anda), berikan

- (i) Keperluan teknikal
- (ii) Pandangan keseluruhan pesawat berdasarkan bentangan asas

*For any type of aircraft (on your choice), please provide*

- (i) *Technical Requirements*

**(5 markah/marks)**

- (ii) *Aircraft overall view with elementary layout.*

**(15 markah/marks)**

[b] Berikan juga pandangan keseluruhan sebarang sistem kawalan penerbangan dan pandu arah dan terangkan perkara yang berikut:

- (i) Kegunaannya
- (ii) Sistem fizikal
- (iii) Operasi am
- (iv) Kedudukan komponen utama
- (v) Sifat sub-sistem secara umum
- (vi) Contoh unit struktur
- (vii) Sistem antara muka.

*Please provide also, the overview of the flight control and navigation system and explain the following:*

- (i) *Its purpose.*
- (ii) *The system physical description.*
- (iii) *The general operation.*
- (iv) *The main components location.*
- (v) *The general sub-system features.*
- (vi) *The examples of structural units.*
- (vii) *The system Interface.*

**(80 markah/marks)**

S9. [a] Bagi sebarang jenis pesawat (pilihan anda), berikan

- (i) Keperluan teknikal
- (ii) Pandangan keseluruhan pesawat berdasarkan bentangan asas

*For any type of aircraft (on your choice), please provide*

- (i) *Technical Requirements*

**(5 markah/marks)**

- (ii) *Aircraft overall view with elementary layout.*

**(15 markah/marks)**

[b] Berikan juga pandangan keseluruhan sebarang sistem penjanaan kuasa, terangkan perkara yang berikut:

- (i) Kegunaannya
- (ii) Sistem fizikal
- (iii) Operasi am
- (iv) Kedudukan komponen utama
- (v) Sifat sub-sistem secara umum
- (vi) Contoh unit struktur
- (vii) Sistem antara muka.

*Please provide also, the overview of the any power generation system and explain the following:*

- (i) *Its purpose.*
- (ii) *The system physical description.*
- (iii) *The general operation.*
- (iv) *The main components location.*
- (v) *The general sub-system features.*
- (vi) *The examples of structural units.*
- (vii) *The system Interface.*

**(80 markah/marks)**